

**JEFFRESS RESEARCH GRANT AWARDS**

The Allocations Committee of the Thomas F. and Kate Miller Jeffress Memorial Trust has announced the award of Jeffress Research Grants to the institutions listed below to support the research of the investigator whose name is given. The Jeffress Trust, established in 1981 under the will of Robert M. Jeffress, a business executive and philanthropist of Richmond, supports research in chemical, medical and other natural sciences through grants to non-profit research and educational institutions in the Commonwealth of Virginia. The Jeffress Research Grants being announced here have been awarded in 2002.

The Jeffress Memorial Trust is administered by Bank of America. Additional information about the program of the Trust may be obtained by writing to: Richard B. Brandt, Ph.D., Advisor, Thomas F. and Kate Miller Jeffress Memorial Trust, Bank of America, Private Bank, P. O. Box 26688, Richmond, VA 23261-6688. An unofficial website is listed under Grants and Awards, [vacadsci.org](http://vacadsci.org).

William P. Anderson, Radford University. Collection of Water Level Data to Test New Methods for Estimating Recharge in Water-Table Aquifers. \$7,000. (one year renewal).

Todd D. Averett, The College of William and Mary. Neutron Spin Structure Studies Using High Density Polarized  $^3\text{He}$  Targets. \$10,000. (one year renewal).

Deborah C. Bebout, The College of William and Mary. Investigation of Silica Supported Copper Complexes as Biometrics of Micronuclear Monooxygenases. \$10,000. (one year renewal).

Matthew J. Beckman, Virginia Commonwealth University Medical College of Virginia. Arthritis and the Importance of Ets-2 in Urokinase-Plasminogen Activator Expression. \$10,000. (one year renewal).

Wade E. Bell, Virginia Military Institute. The Role of Calcium in Paramecium Chemoresponse: Elucidation of Mechanisms for Calcium Influx. \$10,000. (one year).

John W. Bigbee, Virginia Commonwealth University/Medical College of Virginia. Studies on a Cell-substratum Adhesive Role for Neuronal Acetylcholinesterase. \$10,000. (one year renewal.)

Robert A. Bloodgood, University of Virginia. Calcium Regulation of Whole Cell Locomotion. \$25,000. (one year)

Timothy Born, George Mason University. Enzyme Catalyzed Inactivation of the Acylhomoserine Lactone Quorum Sensing Signal. \$10,000. (one year renewal).

Timothy Bos, Eastern Virginia Medical School. Regulation of Breast Cancer Gene Targets by the AP-1 Transcription Factor. \$10,000. (one year).

Gary L. Bowlin, Virginia Commonwealth University. Virginia Commonwealth University. Electrospinning of Elastin Tissue Engineering Scaffolds. \$25,000. (one year).

Karen J. Brewer, Virginia Polytechnic Institute and State University. Binding Metal Centers to Photochemically Active Metal Sites. \$10,000. (one year renewal).

Ann E. Campbell, Eastern Virginia Medical School. Molecular Interactions Among Cytomegalovirus US22 Gene Products that Dictate Cell and Tissue Tropism. \$10,000. (one year renewal).

Paul R. Carlier, Virginia Polytechnic Institute and State University. Enantioselective Alkylation of  $\alpha$ -chiral Nitriles Without Using External Chiral Elements. \$10,000. (one year renewal).

Frank J. Castora, Eastern Virginia Medical School. The Molecular Biology of Human Mitochondrial DNA Topoisomerase I. \$10,000. (one year renewal).

Stephen G. Cessna, Eastern Mennonite University. Reactive Oxygen Production During Salinity Tolerance Responses in Tobacco Cells: Relationship to Cytosolic  $\text{Ca}^{2+}$  Fluxes. \$10,000. (one year renewal).

Randolph M. Chambers, The College of William and Mary. Case Study of the Historical Watershed-Lake Interactions in the Virginia Coastal Plain. \$10,000. (one year renewal).

Jennifer A. Clevinger, James Madison University. Phylogenetic Analysis of [Silphium] and [Berandiera] (Asteraceae) Using DNA Sequence data. \$26,000. (one year).

T. Daniel Crawford, Virginia Polytechnic Institute and State University. Accurate Quantum Chemical Methods for Large Molecules. \$10,000. (one year renewal).

Keith P. Corodimas, Lynchburg College. Adenosine Regulators of Emotional (fear) Learning: Role of A1 Receptors in the Amygdala, Hippocampus and Nucleus Accumbens. \$10,000. (one year renewal).

Gary G. Coté, Radford University. Regulation of Plant Crystal-Containing Idioblast Cells by Herbivory. \$22,000. (one year)

Claire Cronmiller, University of Virginia. Genetic Analysis of Follicle Formation During *Drosophila* Oogenesis. \$20,000. (one year).

Yuping Deng, Eastern Virginia Medical School. Quantitative and Functional Analysis of the Loss of Varicella-Zoster Virus Specific Memory T- Cells in Older Adults. \$10,000. (one year renewal).

David A. DeWitt and John Savory, Liberty University. Aluminum Induced Mitochondrial Injury, Oxidation Stress, and Apoptosis *in vitro*. \$10,000. (one year renewal).

Anca D. Dobrian, Eastern Virginia Medical School. Vascular Reactivity and Oxidative Balance in Large and Small Arteries in a Rat Model of Obesity-Induced Hypertension. \$10,000. (one year renewal).

William B. Eggleston, Virginia Commonwealth University. Characterization of Epiallellism at the Maize *rl* Locus. \$10,000. (one year renewal).

Mark H. Forsyth, The College of William and Mary. A Comparative Genomic Approach to Genetic Diversity Among Virulent and Avirulent *Helicobacter pylori*. \$10,000. (one year renewal).

Gregory D. Foster, George Mason University. The Use of Molecular Markers to Delineate Sources of Organic Carbon and Hydrogeochemical Processes in the Potomac River Watershed. \$10,000. (one year renewal).

Babette Fuss, Virginia Commonwealth University/Medical College of Virginia. Novel Mechanisms in CNS Myelination: Role of PD-1 $\alpha$ /ATX. \$10,000. (one year renewal).

Mark L. Gabriele, James Madison University. Understanding Early Circuit Formation and the Spatial Arrangement of Ascending and Descending Projection Patterns in the Developing Auditory System Prior to the Onset of Hearing. \$22,000. (one year).

George W. Gilchrist, The College of William and Mary. The Genetic Architecture of Rapidly Evolving Traits in Invading Populations of *Drosophila subobscura*. \$30,000. (one year).

William F. Glass, Eastern Virginia Medical School. Regulation of Mesangial Cell Hypertrophy by c-src and Rho. \$10,000. (one year renewal).

Earl W. Godfrey, Eastern Virginia Medical School. Identification of Candidate Proteins for Polysynaptic Differentiation of the Neuromuscular Junction. \$20,400. (one year).

Robert W. Grange and Robert J. Talmadge, Virginia Polytechnic Institute and State University. Role of the ATP-Dependent Ubiquitin-Proteasome Pathway in Cell Cycle Regulation of Normal and Dystrophic Muscle. \$10,000. (one year renewal).

Douglas S. Graber-Neufeld, Eastern Mennonite University. Renal Transport of Organic Anions in Insects: A Role for Handling Environmental Toxins. \$10,000. (one year renewal).



William M. Grogan, Virginia Commonwealth University/Medical College of Virginia. Characterization and Quantification of Post-Translationally Modified Cholesteryl Esterases in Biological Samples by Electrospray Ionization-Fourier Transform Cyclotron resonance (ESI-FTICR) Mass Spectrometry. \$10,000. (one year-renewal).

Michelle Hamm, University of Richmond. Synthesis, Characterization and Biochemical Studies of 8-oxo-2'-deoxyguanosine Analogues: Insights into a potent Promutagen and its Interaction with Nucleic Acids and Proteins. \$10,000. (one year renewal).

James B. Herrick, James Madison University. Exogenous Isolation and Characterization of Antibiotic Resistance Plasmids from an Agriculturally-Impacted Stream. \$23,000. (one year).

Robert S. D. Higgins, Virginia Commonwealth University/Medical College of Virginia. Thrombin Mediated Inflammation in Cardiopulmonary Bypass. \$25,000. (one year).

Joel W. Hockensmith, University of Virginia Medical School. Inhibitors of DNA-Dependent ATP Hydrolytic Activity and Associated Functions. \$26,000. (one year).

Scott Hyman, Sweet Briar College. A Galactic Center Variable and Transient Radio Source Monitoring Program. \$10,000. (one year renewal).

Kimberle M. Jacobs, Virginia Commonwealth University/Medical College of Virginia. Time Course of Gene Expression Changes in Malformed Epileptogenic Cortex. \$30,000. (one year).

Kenneth R. Kambis, The College of William and Mary. The Effects of Caloric Restriction on Mood States at Sea Level and High Altitude. \$10,000. (one year renewal).

Julie A. Kerry, Eastern Virginia Medical School. Mechanisms of Transcriptional Regulation by the HCMV pp71 protein. \$25,000. (one year).

Sunyoung Kim, Virginia Polytechnic Institute and State University. Spectroscopic Investigation of DNA Binding to Photolyase. \$10,000. (one year renewal)

Roni J. Kingsley, University of Richmond. An Ultrastructural Investigation of Calcification in the Ciliate *Coleps*. \$23,027. (one year).

Eugene B. Kolomeisky, University of Virginia. Theory of Low-Dimensional Bose-Einstein Condensation. \$10,000. (one year renewal).

Darius Kuciauskas, Virginia Commonwealth University. Membrane Phase Transitions and Transport Studied by Transient Grating Spectroscopy. \$10,000. (one year renewal).

Lisa M. Landino, The College of William and Mary. Probing the Reactivity of the Sulfhydryl Groups of Microtubule Proteins. \$24,000. (one year).

Susan E. Lanzendorf, Eastern Virginia Medical School. The Directed Differentiation of Human Embryonic Stem Cell Lines into Dopamine Producing Neural Cells. \$25,000. (one year)

Timothy Larson, Virginia Polytechnic Institute and State University. Trafficking of Sulfur in Bacteria. \$25,000. (one year).

Michael C. Leopold, University of Richmond. Biological Enhanced Metallic Nanoparticles: The Next Dimension of Protein Enhanced Monolayer Electrochemistry. \$25,000. (one year).

Scott B. Lewis, James Madison University. Search for the Most Appropriate Precursor of Difluorocarbene to Produce Difluoroaromatic Compounds. \$10,000. (one year renewal).

Nilanga Liyanage, University of Virginia. Construction of a Proto-Type Multi-Wire Proportional Chamber for Jefferson Lab. Engineering. \$25,000. (one year)

Thurman E. Lockhart, Virginia Polytechnic Institute and State University. Effects of Age-Related Changes in Hamstring Activation Rate and Heel Contact Velocity on the Biomechanics of Slips and Falls. \$10,000. (one year renewal).

Rowan Lockwood, The College of William and Mary. Live-Dead Assemblage Comparisons in the Chesapeake Bay: Laying the Groundwork for Paleological Analyses of Holocene Benthic Molluscs. \$29,500. (one year).

Gunter Lüpke, The College of William and Mary. Vibrational Relaxation of Hydrogen-Related Defects in Silicon. \$10,000. (one year renewal).

Michael Madigan, Virginia Polytechnic Institute and State University. Effects of Low Back Fatigue on Balance. \$22,000. (one year).

Mary C. Mahony and Peter Blackmore, Eastern Virginia Medical School, Jones Institute for Reproductive Medicine. Involvement of the MAP Kinase Signaling Cascade in Sperm Hyperactivated Motility. \$10,000. (one year renewal).

Sergio Oehninger and Mahmood Morshedi, Eastern Virginia Medical School. Identification, Characterization of Cellular Pathways and Prevention of Apoptosis in Spermatozoa of Infertile Men. \$10,000. (one year renewal).

Manish S. Patankar and Frank A. Lattanzio, Eastern Virginia Medical School. Structural and Functional Analysis of the Ovarian Tumor Marker CA 125. \$10,000. (one year renewal).

K. Kevin Pfister, University of Virginia. Mechanism of Adenovirus Transport Along Microtubules. \$10,000. (one year renewal).

Robert D. Pike, The College of William and Mary. Bridging Caged Phosphite Ligands: New Metal-Organic Network Formers. \$17,450. (one year).

John S. Poutsma, The College of William and Mary. Computational Studies of the Structure and Energetics on Non-Protein Amino Acids. \$10,000. (one year renewal).

Robyn A. Puffenbarger, Bridgewater College. Cannabinoid Receptor Expression in Macrophages. \$26,800. (one year).

Jennifer Radkiewicz, Old Dominion University. An Investigation of 2-Aminoethoxydiphenylborate and Analogs as Store-Operated Calcium Entry Channel Inhibitors. \$25,000. (one year).

Anne C. Reilly, The College of William and Mary. Investigation of Pulsed Laser Deposition of Magnetic Multilayer Systems. \$10,000. (one year renewal).

Jason P. Rife, Virginia Commonwealth University/Medical College of Virginia. Nucleotide Methylation in Ribosome Maturation Biochemistry. \$18,000. (one year).

Margaret Saha, The College of William and Mary. Novel Laser-Based Strategies for the Insertion of DNA into Cells of Living Organisms. \$24,000. (one year).

David G. Simpson, Virginia Commonwealth University/Medical College of Virginia. Strain and Substrate Specific Regulation of MMP-9 Gelatinase. \$26,000. (one year).

Jennifer E. Slate, Old Dominion University. Recent and Historical Environmental Change in Lake Drummond within the Great Dismal Swamp. \$10,000. (one year renewal).

Caroline Smith, James Madison University. The Aeroacoustics of Turbulent Coanda Jets. \$24,000. (one year).

Wayne M. Stalick, George Mason University. A Mild Versatile Synthesis of Functionalized -Carbolines Derivatives. \$10,000. (one year renewal).

Michael W. Stacey, Eastern Virginia Medical School. Increased Killing of Cancer Cells: Targeting of DNA Repair Genes, in Conjunction with Exposure to Ultra-Short High Intensity, Electric Fields. \$25,000. (one year).

Christopher M. Stevenson and Derek Wheeler, Department of Historic Resources Commonwealth of Virginia. The Hydration Dating of Historic Soda-Lime Glass: A New Archeological Dating Method. \$30,000. (one year).

David W. Sukow, Washington and Lee University. High-Frequency Oscillations from a Semiconductor Laser with Two Delayed Optical Feedbacks. \$10,000. (one year renewal).

Uwe Tauber, Virginia Polytechnic Institute and State University. Scaling and Universality in Non-Equilibrium Systems. \$9,970. (one year renewal).

Robert E. Welsh, The College of William and Mary. A Multi-Modality Gamma-Ray Imaging Device for Biological Research on Small Animals. \$10,000. (one year renewal).

Edward J. Wojcik, Virginia Polytechnic Institute and State University. The Role of Ubiquitin-Mediated Proteolysis in Centrosome Duplication in *Drosophila*. \$10,000. (one year renewal).

Fang-Sheng Wu, Virginia Commonwealth University. Direct Gene Transfer of a Intact Plant Cells. \$10,000. (one year renewal).

Jongsoo Yoon, University of Virginia. Transport Measurements on Superconducting Tantalum Thin Films. \$30,000. (one year).

Jeffrey S. Young, University of Virginia School of Medicine. Role of Nuclear Factor Kappa B in Post Trauma Acute Lung Dysfunction. \$10,000. (one year renewal).